



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : C12N 15/29, C07K 14/415, C12P 21/02, C12N 1/21, C07K 16/16, C12N 5/04, A23L 3/375, A23G 9/02, 9/04, C12N 15/82</p>		<p>(11) International Publication Number: WO 98/22591</p> <p>(43) International Publication Date: 28 May 1998 (28.05.98)</p>
<p>(21) International Application Number: PCT/EP97/06181</p> <p>(22) International Filing Date: 6 November 1997 (06.11.97)</p> <p>(30) Priority Data: 96308362.1 19 November 1996 (19.11.96) EP <i>(34) Countries for which the regional or international application was filed:</i> NL et al.</p> <p>(71) Applicant (for all designated States except AU BB CA GB GH IE KE LK LS MN MW NZ SD SG SZ TT UG US ZW): UNILEVER N.V. [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).</p> <p>(71) Applicant (for AU BB CA GB GH IE KE LK LS MN MW NZ SD SG SZ TT UG ZW only): UNILEVER PLC [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (for US only): BYASS, Louise, Jane [GB/GB]; The University of York, Dept. of Biology, The Plant Laboratory, Heslington, York YO1 5YW (GB). DOUCET, Charlotte, Juliette [NL/GB]; The University of York, Dept. of Biology, The Plant Laboratory, Hes-</p>		
<p>lington, York YO1 5YW (GB). FENN, Richard, Anthony [GB/GB]; Unilever Research Colworth Lab., Colworth House, Sharnbrook MK44 1LQ (GB). McARTHUR, Andrew, John [GB/GB]; Unilever Research Colworth Lab., Colworth House, Sharnbrook MK44 1LQ (GB). SIDEBOTTOM, Christopher, Michael [GB/GB]; Unilever Research Colworth Lab., Colworth House, Sharnbrook MK44 1LQ (GB). SMALLWOOD, Margaret, Felicia [GB/GB]; The University of York, Dept. of Biology, The Plant Laboratory, Heslington, York YO1 5YW (GB). WARRELL, Dawn [GB/GB]; The University of York, Dept. of Biology, The Plant Laboratory, Heslington, York YO1 5YW (GB).</p> <p>(74) Common Representative: UNILEVER N.V.; Patent Division, P.O. Box 137, NL-3130 AC Vlaardingen (NL).</p> <p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 30 July 1998 (30.07.98)</p>		
<p>(54) Title: CARROT ANTIFREEZE POLYPEPTIDES</p> <p>(57) Abstract</p> <p>Novel antifreeze polypeptides can be isolated from carrots. These peptides can favourably influence the properties of consumer products, e.g. frozen confectionary products.</p>		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 97/06181

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6	C12N15/29	C07K14/415	C12P21/02	C12N1/21	C07K16/16
	C12N5/04	A23L3/375	A23G9/02	A23G9/04	C12N15/82

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C07K C12P A23L A23G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DUMAN J G ET AL: "THERMAL HYSTERESIS PROTEIN ACTIVITY IN BACTERIA FUNGI AND PHYLOGENETICALLY DIVERSE PLANTS." CRYOBIOLOGY 30 (3). 1993. 322-328., XP000673724 see the whole document ---	1,2
A	WO 92 22581 A (UNIV WATERLOO) 23 December 1992 cited in the application see page 14; claims 20-26 ---	1-4,7, 10-15
A	WO 94 03617 A (UNILEVER PLC ;UNILEVER NV (NL); TOSCHKA HOLGER YORK (NL); VERBAKEL) 17 February 1994 see the whole document ---	5,6,8,9, 16
		-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Maddox, A

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	WO 96 11586 A (HSC RES DEV LP ;SEABRIGHT CORP LTD (CA)) 25 April 1996 cited in the application see the whole document ----	5,6,8,9, 12,13,16
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A	LEE, J., ET AL.: "The reduction of the freezing point of tobacco plants transformed with the gene encoding for the antifreeze protein from winter flounder" J.CELL.BIOCHEM.SUPPL., vol. 14E, 1990, page 303 XP002030248 * abstract R228 * ----	15
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